



034325-002.ST25

SEQUENCE LISTING

<10> Gullberg, Donald

<120> AN INTEGRIN HETERODIMER AND AN ALPHA SUBUNIT THEREOF

<130> 034325-002

<140> US 09/980,403

<141> 2001-12-03

<150> SE 9902056-2

<151> 1999-06-03

<160> 5

<170> PatentIn Ver. 2.1

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                               Met Asp Leu Pro Arg Gly Leu Val

gtg gcc tgg gcg ctc agc ctg tgg cca ggg ttc acg gac acc ttc aac 162
Val Ala Trp Ala Leu Ser Leu Trp Pro Gly Phe Thr Asp Thr Phe Asn
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Met Asp Thr Arg Lys Pro Arg Val Ile Pro Gly Ser Arg Thr Ala Phe
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Phe Gly Tyr Thr Val Gln Gln His Asp Ile Ser Gly Asn Lys Trp Leu
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Val Val Gly Ala Pro Leu Glu Thr Asn Gly Tyr Gln Lys Thr Gly Asp
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Val Tyr Lys Cys Pro Val Ile His Gly Asn Cys Thr Lys Leu Asn Leu
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Gly Arg Val Thr Leu Ser Asn Val Ser Glu Arg Lys Asp Asn Met Arg
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| tgc agc ccc ctc tgg tct cat gag tgt ggg agc tcc tac tac acc aca | 498 |
| Cys Ser Pro Leu Trp Ser His Glu Cys Gly Ser Ser Tyr Tyr Thr Thr | |
| 125 130 135 | |
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| Gly Met Cys Ser Arg Val Asn Ser Asn Phe Arg Phe Ser Lys Thr Val | |
| 140 145 150 | |
| gcc cca gct ctc caa agg tgc cag acc tac atg gac atc gtc att gtc | 594 |
| Ala Pro Ala Leu Gln Arg Cys Gln Thr Tyr Met Asp Ile Val Ile Val | |
| 155 160 165 | |
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| Leu Asp Gly Ser Asn Ser Ile Tyr Pro Trp Val Glu Val Gln His Phe | |
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| Leu Ile Asn Ile Leu Lys Lys Phe Tyr Ile Gly Pro Gly Gln Ile Gln | |
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| Val Gly Val Val Gln Tyr Gly Glu Asp Val Val His Glu Phe His Leu | |
| 205 210 215 | |
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| Glu Gln Arg Gly Gly Thr Glu Thr Arg Thr Ala Phe Gly Ile Glu Phe | |
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| Glu Lys Val Ile Gln Gln Ser Glu Arg Asp Asn Val Thr Arg Tyr Ala | |
| 285 290 295 | |
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| Val Ala Val Leu Gly Tyr Tyr Asn Arg Arg Gly Ile Asn Pro Glu Thr | |
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| Leu Gly Tyr Thr Val Thr Ser Val Val Ser Ser Arg Gln Gly Arg Val | |
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| Tyr Val Ala Gly Ala Pro Arg Phe Asn His Thr Gly Lys Val Ile Leu | |
| 445 450 455 | |
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| Phe Thr Met His Asn Asn Arg Ser Leu Thr Ile His Gln Ala Met Arg | |
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| Arg Gln Asn Arg Phe Val Tyr Asn Gly Thr Leu Lys Asp Ser His Ser | |
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| 540 545 550 | |
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| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
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| | | 555 | | | | | 560 | | | | | 565 | | | | |
| aac | cac | gca | gga | gcc | atc | tac | atc | ttc | cac | ggc | ttc | cga | ggc | agc | atc | 1842 |
| Asn | His | Ala | Gly | Ala | Ile | Tyr | Ile | Phe | His | Gly | Phe | Arg | Gly | Ser | Ile | |
| | 570 | | | | | 575 | | | | | 580 | | | | | |
| ctg | aag | aca | cct | aag | cag | aga | atc | aca | gcc | tca | gag | ctg | gct | acc | ggc | 1890 |
| Leu | Lys | Thr | Pro | Lys | Gln | Arg | Ile | Thr | Ala | Ser | Glu | Leu | Ala | Thr | Gly | |
| 585 | | | | | 590 | | | | | 595 | | | | | 600 | |
| ctc | cag | tat | ttt | ggc | tgc | agc | atc | cac | ggg | caa | ttg | gac | ctc | aat | gag | 1938 |
| Leu | Gln | Tyr | Phe | Gly | Cys | Ser | Ile | His | Gly | Gln | Leu | Asp | Leu | Asn | Glu | |
| | | | | 605 | | | | | 610 | | | | | 615 | | |
| gat | ggg | ctc | atc | gac | ctg | gca | gtg | gga | gcc | ctt | ggc | aac | gct | gtg | att | 1986 |
| Asp | Gly | Leu | Ile | Asp | Leu | Ala | Val | Gly | Ala | Leu | Gly | Asn | Ala | Val | Ile | |
| | | | 620 | | | | | 625 | | | | | 630 | | | |
| ctg | tgg | tcc | cgc | cca | gtg | gtt | cag | atc | aat | gcc | agc | ctc | cac | ttt | gag | 2034 |
| Leu | Trp | Ser | Arg | Pro | Val | Val | Gln | Ile | Asn | Ala | Ser | Leu | His | Phe | Glu | |
| | | 635 | | | | | 640 | | | | | 645 | | | | |
| cca | tcc | aag | atc | aac | atc | ttc | cac | aga | gac | tgc | aag | cgc | agt | ggc | agg | 2082 |
| Pro | Ser | Lys | Ile | Asn | Ile | Phe | His | Arg | Asp | Cys | Lys | Arg | Ser | Gly | Arg | |
| | | 650 | | | | 655 | | | | | 660 | | | | | |
| gat | gcc | acc | tgc | ctg | gcc | gcc | ttc | ctc | tgc | ttc | acg | ccc | atc | ttc | ctg | 2130 |
| Asp | Ala | Thr | Cys | Leu | Ala | Ala | Phe | Leu | Cys | Phe | Thr | Pro | Ile | Phe | Leu | |
| 665 | | | | | 670 | | | | 675 | | | | | | 680 | |
| gca | ccc | cat | ttc | caa | aca | aca | act | gtt | ggc | atc | aga | tac | aac | gcc | acc | 2178 |
| Ala | Pro | His | Phe | Gln | Thr | Thr | Thr | Val | Gly | Ile | Arg | Tyr | Asn | Ala | Thr | |
| | | | | 685 | | | | | 690 | | | | | 695 | | |
| atg | gat | gag | agg | cgg | tat | aca | ccg | agg | gcc | cac | ctg | gac | gag | ggc | ggg | 2226 |
| Met | Asp | Glu | Arg | Arg | Tyr | Thr | Pro | Arg | Ala | His | Leu | Asp | Glu | Gly | Gly | |
| | | | 700 | | | | | 705 | | | | | 710 | | | |
| gac | cga | ttc | acc | aac | aga | gcc | gta | ctg | ctc | tcc | tcc | ggc | cag | gag | ctc | 2274 |
| Asp | Arg | Phe | Thr | Asn | Arg | Ala | Val | Leu | Leu | Ser | Ser | Gly | Gln | Glu | Leu | |
| | | 715 | | | | | 720 | | | | | 725 | | | | |
| tgt | gag | cgg | atc | aac | ttc | cat | gtc | ctg | gac | act | gct | gac | tac | gtg | aag | 2322 |
| Cys | Glu | Arg | Ile | Asn | Phe | His | Val | Leu | Asp | Thr | Ala | Asp | Tyr | Val | Lys | |
| | 730 | | | | | 735 | | | | | 740 | | | | | |
| cca | gtg | acc | ttc | tca | gtc | gag | tat | tcc | ctg | gag | gac | cct | gac | cat | ggc | 2370 |
| Pro | Val | Thr | Phe | Ser | Val | Glu | Tyr | Ser | Leu | Glu | Asp | Pro | Asp | His | Gly | |
| 745 | | | | | 750 | | | | | 755 | | | | | 760 | |
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| Phe | Trp | Asn | Gly | Cys | Asn | Glu | Asp | Glu | His | Cys | Val | Pro | Asp | Leu | Val | |

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| 780 | | | | | | | | | | 785 | | | | | 790 | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|--|--|------|--|--|--|--|
| ttg | gat | gcc | cgg | agt | gac | ctg | ccc | acg | gcc | atg | gag | tac | tgc | cag | agg | 2514 | | | | | | | | |
| Leu | Asp | Ala | Arg | Ser | Asp | Leu | Pro | Thr | Ala | Met | Glu | Tyr | Cys | Gln | Arg | | | | | | | | | |
| 795 | | | | | | | | | | 800 | | | | | 805 | | | | | | | | | |
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| Asp | Thr | Thr | Val | Phe | Ile | Ile | Glu | Ser | Thr | Arg | Gln | Arg | Val | Ala | Val | | | | | | | | | |
| 825 | | | | | | | | | | 830 | | | | | 835 | | | | | 840 | | | | |
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| gag | gcc | aca | ctg | gag | aac | agg | ggc | gag | aac | gcc | tac | agt | acg | gtc | cta | 2658 | | | | | | | | |
| Glu | Ala | Thr | Leu | Glu | Asn | Arg | Gly | Glu | Asn | Ala | Tyr | Ser | Thr | Val | Leu | | | | | | | | | |
| 845 | | | | | | | | | | 850 | | | | | 855 | | | | | | | | | |
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| Asn | Ile | Ser | Gln | Ser | Ala | Asn | Leu | Gln | Phe | Ala | Ser | Leu | Ile | Gln | Lys | | | | | | | | | |
| 860 | | | | | | | | | | 865 | | | | | 870 | | | | | | | | | |
| gag | gac | tca | gac | ggc | agc | att | gag | tgt | gtg | aac | gag | gag | agg | agg | ctc | 2754 | | | | | | | | |
| Glu | Asp | Ser | Asp | Gly | Ser | Ile | Glu | Cys | Val | Asn | Glu | Glu | Arg | Arg | Leu | | | | | | | | | |
| 875 | | | | | | | | | | 880 | | | | | 885 | | | | | | | | | |
| cag | aag | caa | gtc | tgc | aac | gtc | agc | tat | ccc | ttc | ttc | cgg | gcc | aag | gcc | 2802 | | | | | | | | |
| Gln | Lys | Gln | Val | Cys | Asn | Val | Ser | Tyr | Pro | Phe | Phe | Arg | Ala | Lys | Ala | | | | | | | | | |
| 890 | | | | | | | | | | 895 | | | | | 900 | | | | | | | | | |
| aag | gtg | gct | ttc | cgt | ctt | gat | tcc | gag | ttc | agc | aaa | tcc | atc | ttc | cta | 2850 | | | | | | | | |
| Lys | Val | Ala | Phe | Arg | Leu | Asp | Ser | Glu | Phe | Ser | Lys | Ser | Ile | Phe | Leu | | | | | | | | | |
| 905 | | | | | | | | | | 910 | | | | | 915 | | | | | 920 | | | | |
| cac | cac | ctg | gag | atc | gag | ctc | gct | gca | ggc | agt | gac | agt | aat | gag | cgg | 2898 | | | | | | | | |
| His | His | Leu | Glu | Ile | Glu | Leu | Ala | Ala | Gly | Ser | Asp | Ser | Asn | Glu | Arg | | | | | | | | | |
| 925 | | | | | | | | | | 930 | | | | | 935 | | | | | | | | | |
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| Asp | Ser | Thr | Lys | Glu | Asp | Asn | Val | Ala | Pro | Leu | Arg | Phe | His | Leu | Lys | | | | | | | | | |
| 940 | | | | | | | | | | 945 | | | | | 950 | | | | | | | | | |
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| Tyr | Glu | Ala | Asp | Val | Leu | Phe | Thr | Arg | Ser | Ser | Ser | Leu | Ser | His | Tyr | | | | | | | | | |
| 955 | | | | | | | | | | 960 | | | | | 965 | | | | | | | | | |
| gag | gtc | aag | ctc | aac | agc | tcg | ctg | gag | aga | tac | gat | ggc | atc | ggg | cct | 3042 | | | | | | | | |
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| 970 | | | | | | | | | | 975 | | | | | 980 | | | | | | | | | |
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| Pro | Phe | Ser | Cys | Ile | Phe | Arg | Ile | Gln | Asn | Leu | Gly | Leu | Phe | Pro | Ile | | | | | | | | | |
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| | |
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| Asn Arg Leu Leu Lys Leu Arg Asp Phe Leu Thr Asp Glu Ala Asn Thr | |
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| Ser Cys Asn Ile Trp Gly Asn Ser Thr Glu Tyr Arg Pro Thr Pro Val | |
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| gag gaa gac ttg cgt cgt gct cca cag ctg aat cac agc aac tct gat | 3282 |
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| 1065 1070 1075 1080 | |
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| 1085 1090 1095 | |
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| 1100 1105 1110 | |
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| Phe His Ser Pro Phe Ile Phe Arg Glu Glu Asp Pro Ser Arg Gln Ile | |
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| Glu Phe Glu Ile Ser Lys Gln Glu Asp Trp Gln Val Pro Ile Trp Ile | |
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| Ile Val Gly Ser Thr Leu Gly Gly Leu Leu Leu Leu Ala Leu Leu Val | |
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| 1180 1185 | |
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3983

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 Asp Ile Ser Gly Asn Lys Trp Leu Val Val Gly Ala Pro Leu Glu Thr
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 Gly Asn Cys Thr Lys Leu Asn Leu Gly Arg Val Thr Leu Ser Asn Val
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 Ser Glu Arg Lys Asp Asn Met Arg Leu Gly Leu Ser Leu Ala Thr Asn
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 Pro Trp Val Glu Val Gln His Phe Leu Ile Asn Ile Leu Lys Lys Phe
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 Tyr Ile Gly Pro Gly Gln Ile Gln Val Gly Val Val Gln Tyr Gly Glu
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 Arg Asp Asn Val Thr Arg Tyr Ala Val Ala Val Leu Gly Tyr Tyr Asn
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 Arg Arg Gly Ile Asn Pro Glu Thr Phe Leu Asn Glu Ile Lys Tyr Ile
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 Ala Ser Asp Pro Asp Asp Lys His Phe Phe Asn Val Thr Asp Glu Ala
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 Ala Leu Lys Asp Ile Val Asp Ala Leu Gly Asp Arg Ile Phe Ser Leu
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 355 360 365
 Thr Gly Phe Ser Ser His Val Val Glu Asp Gly Val Leu Leu Gly Ala
 370 375 380
 Val Gly Ala Tyr Asp Trp Asn Gly Ala Val Leu Lys Glu Thr Ser Ala
 385 390 395 400
 Gly Lys Val Ile Pro Leu Arg Glu Ser Tyr Leu Lys Glu Phe Pro Glu
 405 410 415
 Glu Leu Lys Asn His Gly Ala Tyr Leu Gly Tyr Thr Val Thr Ser Val
 420 425 430
 Val Ser Ser Arg Gln Gly Arg Val Tyr Val Ala Gly Ala Pro Arg Phe
 435 440 445
 Asn His Thr Gly Lys Val Ile Leu Phe Thr Met His Asn Asn Arg Ser
 450 455 460
 Leu Thr Ile His Gln Ala Met Arg Gly Gln Gln Ile Gly Ser Tyr Phe
 465 470 475 480
 Gly Ser Glu Ile Thr Ser Val Asp Ile Asp Gly Asp Gly Val Thr Asp
 485 490 495
 Val Leu Leu Val Gly Ala Pro Met Tyr Phe Asn Glu Gly Arg Glu Arg
 500 505 510
 Gly Lys Val Tyr Val Tyr Glu Leu Arg Gln Asn Arg Phe Val Tyr Asn
 515 520 525
 Gly Thr Leu Lys Asp Ser His Ser Tyr Gln Asn Ala Arg Phe Gly Ser
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 Ser Ile Ala Ser Val Arg Asp Leu Asn Gln Asp Ser Tyr Asn Asp Val
 545 550 555 560

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| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Val | Gly | Ala | Pro | Leu | Glu | Asp | Asn | His | Ala | Gly | Ala | Ile | Tyr | Ile | 565 | 570 | 575 |
| Phe | His | Gly | Phe | Arg | Gly | Ser | Ile | Leu | Lys | Thr | Pro | Lys | Gln | Arg | Ile | 580 | 585 | 590 |
| Thr | Ala | Ser | Glu | Leu | Ala | Thr | Gly | Leu | Gln | Tyr | Phe | Gly | Cys | Ser | Ile | 595 | 600 | 605 |
| His | Gly | Gln | Leu | Asp | Leu | Asn | Glu | Asp | Gly | Leu | Ile | Asp | Leu | Ala | Val | 610 | 615 | 620 |
| Gly | Ala | Leu | Gly | Asn | Ala | Val | Ile | Leu | Trp | Ser | Arg | Pro | Val | Val | Gln | 625 | 630 | 635 |
| Ile | Asn | Ala | Ser | Leu | His | Phe | Glu | Pro | Ser | Lys | Ile | Asn | Ile | Phe | His | 645 | 650 | 655 |
| Arg | Asp | Cys | Lys | Arg | Ser | Gly | Arg | Asp | Ala | Thr | Cys | Leu | Ala | Ala | Phe | 660 | 665 | 670 |
| Leu | Cys | Phe | Thr | Pro | Ile | Phe | Leu | Ala | Pro | His | Phe | Gln | Thr | Thr | Thr | 675 | 680 | 685 |
| Val | Gly | Ile | Arg | Tyr | Asn | Ala | Thr | Met | Asp | Glu | Arg | Arg | Tyr | Thr | Pro | 690 | 695 | 700 |
| Arg | Ala | His | Leu | Asp | Glu | Gly | Gly | Asp | Arg | Phe | Thr | Asn | Arg | Ala | Val | 705 | 710 | 715 |
| Leu | Leu | Ser | Ser | Gly | Gln | Glu | Leu | Cys | Glu | Arg | Ile | Asn | Phe | His | Val | 725 | 730 | 735 |
| Leu | Asp | Thr | Ala | Asp | Tyr | Val | Lys | Pro | Val | Thr | Phe | Ser | Val | Glu | Tyr | 740 | 745 | 750 |
| Ser | Leu | Glu | Asp | Pro | Asp | His | Gly | Pro | Met | Leu | Asp | Asp | Gly | Trp | Pro | 755 | 760 | 765 |
| Thr | Thr | Leu | Arg | Val | Ser | Val | Pro | Phe | Trp | Asn | Gly | Cys | Asn | Glu | Asp | 770 | 775 | 780 |
| Glu | His | Cys | Val | Pro | Asp | Leu | Val | Leu | Asp | Ala | Arg | Ser | Asp | Leu | Pro | 785 | 790 | 795 |
| Thr | Ala | Met | Glu | Tyr | Cys | Gln | Arg | Val | Leu | Arg | Lys | Pro | Ala | Gln | Asp | 805 | 810 | 815 |
| Cys | Ser | Ala | Tyr | Thr | Leu | Ser | Phe | Asp | Thr | Thr | Val | Phe | Ile | Ile | Glu | 820 | 825 | 830 |
| Ser | Thr | Arg | Gln | Arg | Val | Ala | Val | Glu | Ala | Thr | Leu | Glu | Asn | Arg | Gly | 835 | 840 | 845 |
| Glu | Asn | Ala | Tyr | Ser | Thr | Val | Leu | Asn | Ile | Ser | Gln | Ser | Ala | Asn | Leu | 850 | 855 | 860 |

Gln Phe Ala Ser Leu Ile Gln Lys Glu Asp Ser Asp Gly Ser Ile Glu
 865 870 875 880
 Cys Val Asn Glu Glu Arg Arg Leu Gln Lys Gln Val Cys Asn Val Ser
 885 890 895
 Tyr Pro Phe Phe Arg Ala Lys Ala Lys Val Ala Phe Arg Leu Asp Ser
 900 905 910
 Glu Phe Ser Lys Ser Ile Phe Leu His His Leu Glu Ile Glu Leu Ala
 915 920 925
 Ala Gly Ser Asp Ser Asn Glu Arg Asp Ser Thr Lys Glu Asp Asn Val
 930 935 940
 Ala Pro Leu Arg Phe His Leu Lys Tyr Glu Ala Asp Val Leu Phe Thr
 945 950 955 960
 Arg Ser Ser Ser Leu Ser His Tyr Glu Val Lys Leu Asn Ser Ser Leu
 965 970 975
 Glu Arg Tyr Asp Gly Ile Gly Pro Pro Phe Ser Cys Ile Phe Arg Ile
 980 985 990
 Gln Asn Leu Gly Leu Phe Pro Ile His Gly Met Met Met Lys Ile Thr
 995 1000 1005
 Ile Pro Ile Ala Thr Arg Ser Gly Asn Arg Leu Leu Lys Leu Arg Asp
 1010 1015 1020
 Phe Leu Thr Asp Glu Ala Asn Thr Ser Cys Asn Ile Trp Gly Asn Ser
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 Thr Glu Tyr Arg Pro Thr Pro Val Glu Glu Asp Leu Arg Arg Ala Pro
 1045 1050 1055
 Gln Leu Asn His Ser Asn Ser Asp Val Val Ser Ile Asn Cys Asn Ile
 1060 1065 1070
 Arg Leu Val Pro Asn Gln Glu Ile Asn Phe His Leu Leu Gly Asn Leu
 1075 1080 1085
 Trp Leu Arg Ser Leu Lys Ala Leu Lys Tyr Lys Ser Met Lys Ile Met
 1090 1095 1100
 Val Asn Ala Ala Leu Gln Arg Gln Phe His Ser Pro Phe Ile Phe Arg
 1105 1110 1115 1120
 Glu Glu Asp Pro Ser Arg Gln Ile Glu Phe Glu Ile Ser Lys Gln Glu
 1125 1130 1135
 Asp Trp Gln Val Pro Ile Trp Ile Ile Val Gly Ser Thr Leu Gly Gly
 1140 1145 1150
 Leu Leu Leu Leu Ala Leu Leu Val Leu Ala Leu Arg Lys Leu Gly Phe
 1155 1160 1165

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Phe Arg Ser Ala Arg Arg Arg Arg Glu Pro Gly Leu Asp Pro Thr Pro
1170 1175 1180

Lys Val Leu Glu
1185

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<400> 5
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1 5